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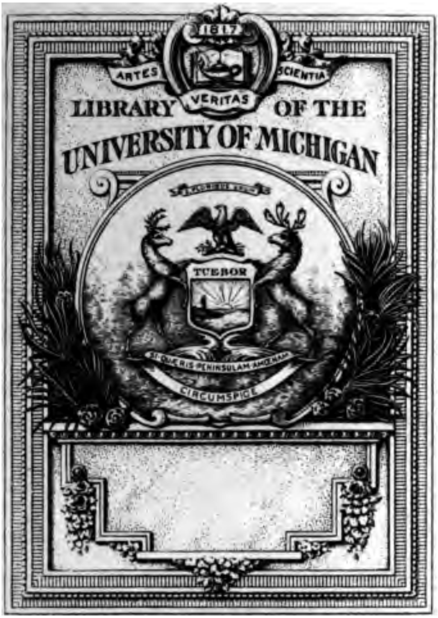
Sampson – Electrotint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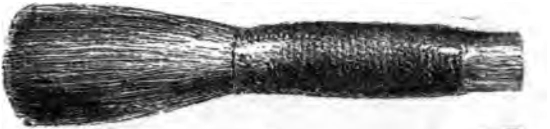

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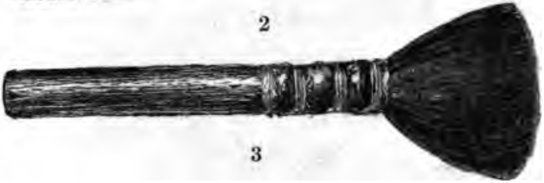

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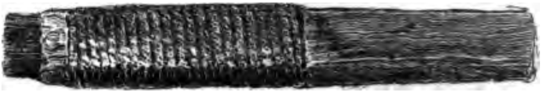

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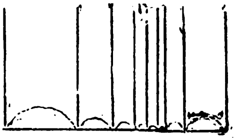

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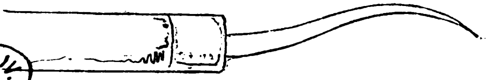

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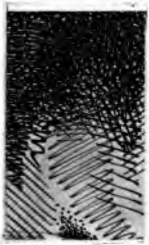

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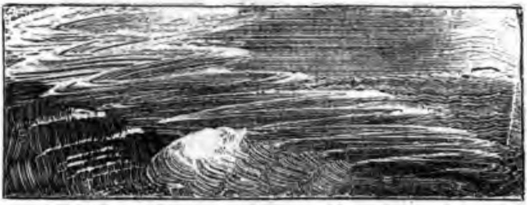

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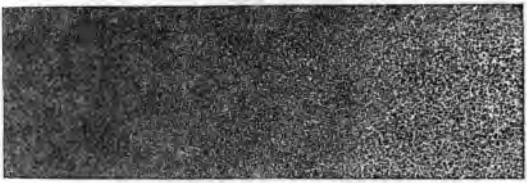

4

ELECTROTINT

OR

THE ART OF MAKING PAINTINGS

IN SUCH A MANNER

THAT

COPPER PLATES AND "BLOCKS"

CAN BE TAKEN FROM THEM

BY MEANS OF

VOLTAIC ELECTRICITY

BY

THOMAS SAMPSON

PUBLISHED BY EDWARD PALMER
PHILOSOPHICAL INSTRUMENT MAKER
No 103 NEWGATE STREET LONDON

1842
[*Entered at Stationers' Hall*]

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PRINTED BY WILLIAM GILBERT, SALTERS-HALL COURT,
CANNON STREET.

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PREFACE.

HAVING been engaged for a considerable time in assisting Mr. PALMER, of Newgate Street, to carry out the process of electrotint painting, for which he has obtained a patent, he was desirous that I should write an explanation of the process, for the use of artists and amateurs; considering that being an artist, I should be able to give a clearer description of the modes of proceeding, than a person with some pretensions to literary excellence, but wholly unacquainted with the technicalities of art.

An elaborate work may, at some future time be produced, with highly-finished illustrations of the style; the object has been in this, to give as concise a description of it as possible, accompanied by such illustrations only, as will give idea of the brushes used, and of the different modes of "handling," and producing "texture."

Every artist will appreciate the advantage of being able to transfer at once to the copper-plate his own touch and feeling, without the assistance of a translator; it is presumed, therefore, that the electrotint process, which gives this advantage, will be taken up by them, and speedily brought to perfection.

It has been thought advisable, since the following pages were written, to annex a copy of the specification of the patent, which, in itself, contains proper directions for electrotint painting. —The specification having been principally prepared from my notes, the reader will not be surprised to find some repetitions in the description of the process.

2, Percy Street,
Dec. 1841.

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PART I.

ELECTROTINT PAINTING.

Electrotint Painting is the art of producing paintings or drawings in such a manner, and so prepared, that, by means of the Electrotype process, copper plates or "blocks" can be obtained from them, capable, when printed from after the manner of ordinarily engraved plates, or wood blocks, of yielding *fac-simile* impressions of the said original paintings or drawings.

It is well known, that copper and other metals can be deposited, by means of voltaic electricity, on any conducting surface, not liable to be prejudicially affected by the solution employed, so as to take an exact impression of that surface—so *exact* indeed, that the sharpest medals, as well as the most elaborately engraved plates, can be minutely imitated. By taking advantage of this important discovery, copper plates can be made from paintings properly prepared, and having surfaces rendered sufficiently conducting, which will multiply, and re-produce, as it were, the identical paintings themselves.

The electrotint painting or drawing can be adapted to both methods of printing in common use; viz.—to produce either *sunken surfaces* or indentations capable of receiving the printing ink, in the same manner as engraved copper-plates, or *raised surfaces* which will come in contact with the ink roller, as the type for letter-press or wood blocks, when set up for ordinary printing.

I will, in the first place, attempt to describe the method of painting used to produce *sunken printing surfaces.*

The paint or composition employed may be made of any suitable materials that will not be prejudicially affected by the solution of sulphate of copper, &c. The qualities it ought to possess are the following:—it should be thin enough to work freely, and yet sufficiently firm to retain the position it is placed in, on the work in hand, without spreading.

As a general rule, the composition ought *never* to dry; so that parts may be joined, and alterations be effected, without any perceptible seam being made where the fresh work unites with that previously done. This moist and plastic quality does not affect the subsequent electrotype process injuriously. If lamp black be used to form the composition, it should be mixed with a considerable portion of some colourless material, otherwise the picture will "tell" much darker than the electrotype impression afterwards to be taken from it will print; the colourless material is necessary, as it compensates, in some degree, for the quantity of ink unavoidably taken up by the printer's hand from the hollows beneath the level of the general surface of the electrotype plate.

A composition found to answer extremely well, is formed of the following ingredients:—One part, by weight, of white wax, two of lard, and one of lamp black; these must be melted together, and stirred till nearly cold, in order to prevent their separation in cooling. To render this composition fit for use, it is necessary to grind it with a small quantity of olive oil. The consistence it should possess will depend in some measure on the temperature of the atmosphere at the time the painting is made, and also on the nature of the subject to be painted; it should be a little thicker than the ordinary bladder colours, which will admit of its being thinned occasionally with spirits of turpentine. When the composition thus thinned is laid on, the turpentine speedily evaporates, allowing a repetition of the stroke—which is advantageous in producing some kinds of effect.

The brushes requisite for the electrotint painting are those commonly used by artists; viz.—fitch and hog-hair tools, and sable and camel-hair pencils. These may be used in the common form, or be cut in different ways to facilitate the production of the effect intended. Points of wood, ivory, and metal, will be required occasionally; a silk dabber also will be found a useful instrument.

The plate selected by the artist to paint on, should be of some metal having a white surface; such as silvered copper or German silver.—This plate must have preparation, made by a soldered band, or otherwise, to connect it with a voltaic battery; and may be highly polished, possess a dull white surface, *or be covered* with the reverse of an aquatint ground, according to the nature of the subject, or taste of the artist.*

The outline may be made in any way considered most suitable. If the electrotint painting be made from the life, the composition before described may be used, thinned with spirits of turpentine. Should the artist be desirous of transferring the outline of a sketch previously made, a tracing on transparent paper, covered thinly at the back with whitening, and properly placed on the plate, must be gone over with an ivory point. The lines will be transferred by these means to the plate, and can be corrected and rendered more permanent by a point of hard Italian chalk, or other substance, capable of slightly scratching the surface.

When a satisfactory outline has been obtained, the plate, especially if polished, should be placed in such a position as to reflect the window of the apartment, or any white surface; such as, for instance, an engraver's shade. This reflection enables the artist, in proceeding with the subject intended to be represented, to see the effect produced.

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* Artists and amateurs can be supplied with *licensed plates*, properly *prepared for* electrotint painting, together with all requisite materials *by applying* to the patentee, No. 103, Newgate Street, London.

Those parts of the design that are intended to be quite white, may either be left entirely uncovered in the first instance, or, if covered, the composition may be afterwards wiped off with a cork stump, or a piece of soft wood, cut to a suitable shape. In the dark and black portions of the work, the composition is to be laid on thickly and roughly; but, to produce the intermediate shades, it must be applied less roughly, and, of course, left thinner on the surface, in proportion to the degree of "tone" required.

It is necessary to bear in mind, that a picture painted *smoothly* in the dark parts, however perfect the effect may appear on the plate, will not, owing to this smoothness, make an impression in the electrotype deposit sufficiently rough to receive and transfer the printing ink, so as to produce an equal degree of shade or "colour" in the print, as the rubbing which the plate undergoes for the purpose of taking off the superfluous ink from the smooth parts, which are to appear white, will, at the same time, remove some from the parts which are to appear dark; if *these* then be made *too* smooth, or *not sufficiently* indented, so as to retain the *necessary* ink, while the printer's hand wipes away the unnecessary—the impression will come off too light in the shadows, or less dark than intended, and the general effect will be weakened or lost. The different methods of "handling," and the various kinds of "texture," must therefore be regulated with reference to the impression they will make in the electrotype copper, as well as the effect they produce in the original painting.

In describing some of the modes of handling, I will begin with the method of producing flat tints of different degrees of intensity, somewhat resembling mezzotinto. Hog-hair brushes, of the kind represented in the second electrotint plate, No. 1, of different sizes, according to the nature of the work, are used for producing the mezzotint texture, by striking them, when charged with the composition, perpendicularly on the surface of the plate. A fitch "softener" (No. 2,) may be used in the same way, or after the hog-hair tool, to get a finer tint, if required; but I must remark, that the tint will appear much finer when transferred to paper, than when the silvered surface of the plate is sparkling through it. I would not, therefore, advise, in any mode of handling, too fine a tint, as a greater degree of brightness will always result from a moderately coarse texture, inasmuch as it allows minute portions of the white paper to appear through it. Another advantage possessed by a moderately coarse texture is, that the plate taken from it is not so tender, and, consequently, will print more impressions than one taken from a painting consisting of an aggregation of very minute particles. It is requisite occasionally to use a small sable pencil, cut short, and to a point, in the manner represented by No. 3, in order to render the tint perfectly even, by taking out any small portions which may be darker than the surrounding mass.

No. 1, in the first electrotint plate, is a specimen of the kind of tint just described. A silk dabber, used carefully, will produce a light tone, of nearly the same quality.

The texture No. 2, resembles, in some degree, the preceding, and is obtained by using a pencil cut diagonally across the quill, and the hairs afterwards made to protrude. It must be held in such a position that the ends of the hairs may come in contact with *the plate, and* thus be repeatedly pushed forward a small space at a time, so as to produce a quantity of very short lines. An ordinary flat hog-hair brush, held in a slanting direction, will answer as well, if the texture is not required to be very fine.

No. 3 I have named "the painted texture."—It may be varied in several ways, according to the taste of the artist, and does not easily wear out in the printing, as it possesses more of the character of line-engraving in the electrotint plate, than of the mezzotint. In this painted texture, ordinary "impasto" must not be trusted to, unless in very narrow portions, as the hollows made by it in the plate would be all smooth, and consequently would have all the ink swept out of them by the hand of the printer, when removing the superfluous ink from the smooth or white parts, as before explained. It is necessary, therefore, to use brushes that will leave the composition on the surface in a series of projecting lines. Flat brushes, of different degrees of fineness, cut short and into a wedge-like shape, answer the purpose very well. That represented by No. 5, in the second plate, is one of the coarsest that can be procured, being made on purpose for printing directions on large packing cases.

The texture No. 4, results from a mixture of the last-mentioned *painted*, and the mezzotint handling; and is obtained by slightly softening the former with a fitch softener. (No. 2.)

The dragged texture No. 5, causes an impression in the electrotype copper, that prints very well, and has a free effect. This mode of handling is generally used by artists in the lights of their pictures; but in the style of electrotint I am now describing, it is admissible in the darker portions only. Any brush will produce the drag, if properly used; a sable pencil, however, seems to answer the purpose best. It must be well filled with the composition thinned with spirits of turpentine, and passed quickly over the surface of the metal. The turpentine will evaporate, and leave the composition in its original state, when, if necessary, the drag can be repeated, but it must not be repeated until the evaporation be complete.

No. 6 shows that the last-mentioned kind of handling can be produced over a surface of composition previously laid on. Considerable care is requisite in doing this, the composition being easily disturbed. The stroke of the brush must not be *repeated in the* same place, until the spirits have evaporated. The difficulty of producing the intended effect, as above-mentioned, is obviated, in some measure, by holding in the hollow of the left hand a shallow saucer, containing some of the composition in its original state; the warmth of the hand heats it slightly, and makes it thin enough for the purpose, without the addition of spirits of turpentine. The artist must be quite sure of his touch who makes use of the dragged texture in this way, for if he hesitate, the composition cools, and becomes totally unfit to produce the intended effect.

In delicate subjects, and in the representations of flesh in highly-finished pictures, it may be necessary to use the stippled texture, No. 7. This is obtained by distinct and separate touches made with the point of a small sable pencil.

The chalk style of handling, No. 8, is almost identical with the last-mentioned, or stipple style; it is, in fact, the stipple worked in a peculiar manner, so as to represent the lines of a chalk drawing. The stipple style, worked in lines over the mezzotint texture, will also produce the effect of a chalk drawing, especially in the dark parts.

The effect of this is very good, and the process of producing it is not so tedious as might be imagined.

No. 9 is a specimen of a pen and ink style.—It has been found extremely difficult to obtain this, arising from the necessity that every line should have a considerable degree of relief, a result apparently quite unattainable with a free flow of fluid from a pen. To overcome this obstacle, I was obliged to invent a pen, the peculiarity of which is, that it contains an apparatus to supply itself with heat. The heat thus communicated to the pen, has the effect of rendering the composition thin, and the composition thus warmed flows freely from the pen; but as it cools immediately on coming in contact with the plate, it leaves a sufficiently projecting surface to answer the end required.

No. 10 shows that the above plan is applicable to ordinary writing.

With respect to making the surface of the picture, when painted on the plate, a conductor of electricity, it is stated in the specification, that the *whole* need not be covered with plumbago for that *purpose; inasmuch* as the lighter parts having, in all directions, minute portions of the metal uncovered, particles of copper will be deposited on them, and form nuclei for its lateral deposition, until the whole be covered:—in my opinion, however, the voltaic deposit attaches itself more closely, and takes a much more perfect cast of the surface of the electrotint painting, when the whole has been well blackleaded. The best method of applying the blacklead is, to sift a quantity of it through a fine muslin sieve, over the surface of the painting, taking off all that is superfluous afterwards, with a very soft camel-hair pencil.

In concluding this part, I will again venture to remark on the importance of having the picture covered with minute projections, in proportion to the depth of tone required, either in the shape of lines or dots. If this be not particularly attended to, and if all the parts be not painted with reference to the impression they will make in the electrotype copper, disappointment as to the effect will be the certain result.

PART II.

SURFACE

ELECTROTINT PAINTING.

I have attempted, in the first part of this little work, to describe a method of painting capable of producing, in electrotype copper plates, ***sunken printing surfaces***, after the manner of engraved plates. I purpose, in this second part, to explain a method of painting that will produce ***raised printing surfaces***, resembling letter-press type, and wood blocks.

The principle is, that the composition laid on in the painting, causes a series of hollows in the electrotype deposit, sufficiently deep to escape being inked by the roller used by the printer, whilst all those parts left uncovered by the *composition, project*, and receive the ink from it.

In order to see the effect of his work during its progress, the artist must choose a copper plate made as black as possible, and paint with a white composition. It is necessary to observe, that none of the carbonates of which white pigments usually consist, should be used for this composition, for the solution of sulphate of copper used in the subsequent stage of the process, will immediately attack them. A composition that will resist the action of the acid contained in the solution, and that will be quite white, if ground on a perfectly clean stone or glass, may be made in the following manner:—Two parts by weight of sulphate of lead, two of lard, and one of white wax, are to be melted together, and stirred till nearly cold: if, after being well ground, this should prove too thick for use, a little olive oil can be added. Sulphate of lead and olive oil, ground to the proper consistence, may be used by themselves, provided that the painting when finished, be, in every part, carefully black-leaded, so that it may be immediately covered by the voltaic deposit.

A copper plate can be made sufficiently black by pouring on it hydro-sulphuret of ammonia, or sol tion of platinum.—A non-conducting substance may, however, be used, such as slate; and the whole made a conductor after the picture is finished.

The tools mentioned as being applicable to the process already described, are equally applicable to the surface electrotint now under consideration. The mode of proceeding is, however, reversed; viz. —the plate, instead of representing (as in the first described process) the light, now represents the dark parts of the picture.

The manner of printing from *raised* surfaces will not allow of such delicate tints as are obtained in prints from engraved copper plates, or the electrotint already described; but impressions from surface blocks possess the compensating quality of superior brightness, as some of the wood-cuts recently produced abundantly prove.

I make the above observations in order that the *nature* of surface printing may be kept in mind by the artist, when engaged in working upon the present system; and would caution him to avoid too great minuteness in his handling.

In laying on the composition to represent the *lights of the subject,* the degree of projection it must possess depends entirely on the width of the mass, as the diagram, No. 6, in the second plate, explains. The curved lines give a section of the composition, as it would be laid on to represent masses of white equal in width to those between the perpendicular lines of the diagram. As a general rule, the composition to be laid on between two dark points should be of a thickness equal to half the distance between them. Stiff brushes, of different degress of fineness, capable of penetrating the composition, leave lines of it between the bristles, projecting in a still greater proportion than half their width; and will, therefore, produce painted textures of proportionate fineness or coarseness. I have given specimens of this handling in the third plate, Nos. 1 and 2.

A brush, of the kind marked No. 1, when charged with the composition, and struck perpendicularly on the plate, will produce the granular texture, No. 3. The gradations can be made by stippling in the parts required to be light, and picking out minute portions in the dark parts with a pointed brush or piece of ivory.

The dragged texture is produced in the manner described in the foregoing part; the effect, however, is exactly the reverse, as the brush leaves a series of peculiarly shaped dots, which print white instead of black. The specimen, No. 4, shows that it can be applied equally well to both bold and fine touches.

In improving some of the touches made by the brush, and in making fine lines through the composition, an ordinary point of round metal is not so useful as an instrument of the shape given at No. 7, in the second plate, having a square point resembling the edge of a chisel. The former merely pushes the composition aside; the one represented in the illustration will entirely remove from the plate a portion of the composition, equal to its width. The composition should be made of a harder consistence, by the addition of white wax, if the drawing be wholly made with an instrument of this construction.

An instrument having several projecting teeth will be found useful on some occasions, and the pen mentioned in the preceding part can be sometimes used with advantage; it will, of course, *when applied to this* process, produce white lines.

It is important to be observed, that the surface of the picture must be rendered conducting by plumbago, or other means, before being placed in the solution.

An immense saving of time is effected by the use of the electrotint process, in producing blocks, &c., for printing; as an instance I would notice, that the illustration No. 7, after proper preparations were made, was begun and finished in three minutes and a half; about the same time, in fact, as would be occupied in drawing the simple lines it is composed of on paper.

A process for lowering blocks for blanket and steam printing is described in the specification, but it has not, as yet, been employed to any great extent.

As the plates and blocks from electrotint paintings, can be applied with great advantage to the printing of china and earthenware, it is to be hoped, that good artists may be induced to make designs for that purpose, and thus to render our pottery as perfect in its style of ornament, as it is in every other respect. Copper rollers, for calico printing, can also be made from the designs in electrotint if those designs be painted on the inside surfaces of hollow cylinders—constructed in such a manner as to separate, in the longitudinal direction, into three or more pieces.

In conclusion, it may be encouraging to the artist and to the amateur to be informed, that if a partial failure should occur, and some parts of the proof impressions should print lighter, and others darker than was intended, the plates may be engraved, burnished, or etched upon, and emendations effected in the same manner as on ordinary copper-plates.

I have only to add that the patentee,—Mr. Palmer, No. 103, Newgate Street, will be happy to give any information required, respecting licenses, plates, and all other matters connected with this valuable and interesting process.

FINIS.

PATENT, dated 12th June, 1841.

[COPY]

SPECIFICATION

OF

EDWARD PALMER,

FOR

"IMPROVEMENTS IN PRODUCING PRINTING SURFACES, AND IN PRINTING CHINA, POTTERY-WARE, MUSIC, MAPS, AND PORTRAITS."

LONDON:

PRINTED BY W. GILBERT, SALTERS-HALL COURT,
CANNON STREET.

To all to whom these Presents shall come. I, *EDWARD PALMER*, *of Newgate Street, in the City of London, Gentleman.*

INVENTION. "IMPROVEMENTS IN PRODUCING PRINTING SURFACES, AND IN PRINTING CHINA, POTTERY-WARE, MUSIC, MAPS, AND PORTRAITS."

Now know ye, that in compliance with the said proviso, I, the said EDWARD PALMER, do hereby declare, that the nature of my said Invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statement thereof (that is to say),—My Invention consists, First—Of a mode of obtaining Printing Surfaces by drawing or painting on Silver or Copper, or other metallic or conducting surface or surfaces; or by painting or drawing on other surfaces, made conducting after painting or drawing thereon, in such manner as to enable me, by the use of the known process of Electrotype or Electrography, to obtain Copper or other Metallic plates, or other surfaces, with sunken surfaces; from which prints may be taken as from engraved Copper or Steel plates or rollers.

Secondly—My Invention consists in a mode of drawing or painting on Copper, or other Metallic or conducting surface or surfaces, or on surfaces made conducting after painting or drawing thereon, so as to enable me, by the use of the aforesaid process of Electrotype or Electrography, to produce or obtain Copper or other Metallic plates with raised surfaces, from which prints may be taken, as from engraved wood blocks or stereotype plates.

I now proceed to describe the mode by which the first part of my Invention is carried on. Having first obtained a Silver, or German Silver, or Albata, a Copper or other Metallic plate or surface, made Metallic for the purpose of Electrotyping, of the required size, which will not be prejudicially acted on by the solution used, with its face whitened, if copper be used, either by a deposit of Silver by Electric deposition, or a coating of Silver plated on it by other means, or by a coating of Platinum, or any other white Metallic or conducting surface or surfaces, made Metallic or conducting for the process of Electrotyping, and having soldered or otherwise suitably affixed a small strip of Copper to the back of the plate or surface, for the purpose of connection with a Voltaic Battery, the Artist can make his outline in any way considered the most suitable, to which making an outline I *make no claim.* If the Electrotint Painting be made from the Life, the Composition hereafter to be described can be used with a fine sable pencil, if slightly thinned with spirits of turpentine; but, if the Artist be desirous of transferring the outline of a sketch already made, it may be traced in the ordinary way, and rendered more permanent by slightly scratching the surface. When a satisfactory outline has been obtained, the Plate or surface is to be placed in such a position as to reflect the window of the apartment, or a white surface of some kind, such as an engraver's shade—in order to see more clearly the work as it is produced on the surface of the Plate; if the surface be a dull white or aquatint ground, this is not absolutely necessary.

The Painting may then be proceeded with, the polished or white surface of the plate being left uncovered in those parts where absolute white is required, the composition laid on thickly and roughly in the dark and black portions, and the intermediate shades rough and thick, in proportion to the degree of the "color" or "tone" required. It is necessary to bear in mind, that a picture painted smoothly, especially in the dark parts, however perfect it may appear on the plate, will not produce an impression capable of receiving and transferring the printing ink in an equal degree, as the rubbing which it undergoes to take off the superfluous ink, renders all the smooth portions of the plate nearly bare. To obtain a regular roughness, sufficient to retain the printing ink, and at the same time to produce an appropriate "texture," various modes of "handling" may be employed; for instance, a flat tint, made by spreading the composition over the plate, and striking a fitch or hog-hair brush perpendicularly all over it, will give an impression in the Electrotint plate, that will retain the printing ink by numberless minute indentations. Cut brushes, of different sorts, make a series of continuous lines on the plate, of different degrees of fineness, which form corresponding indented lines in the voltaic deposit, capable of receiving and transferring the ink, so as to produce the same effect on paper, or other material, as had been previously obtained on the plate. A mixture of the styles of handling already mentioned, will be found useful; that is, the texture produced by the cut brush being slightly softened by dabbing the fitch brush perpendicularly on it. A "dragged" texture can be produced by passing a soft brush, held in a slanting position, quickly over the surface, after the brush has been well filled with the composition, slightly thinned with spirits of turpentine. This can be done over a tint already laid on, if a little care be taken not to disturb the composition. The modes of handling may be varied, so as to obtain the texture an artist may desire.

The composition to be used by artists in the Electrotint paintings, is made of the under-mentioned ingredients. I do not, however, confine myself thereto, as the same may be varied. One part, by weight, of white wax, two of lard, and one of lamp-black, melted together, and stirred till nearly cold. To render this composition fit for use, it is to be ground with a small quantity of olive oil. The consistence required, depends in some measure on the nature of the subject; it ought to be thin enough to work freely, and yet sufficiently firm to retain the position it is placed in without spreading. This composition never dries, and consequently can be removed from the plate, or its position altered at pleasure. The brushes requisite are those commonly used by artists; sable, hog-hair, fitch, and camels-hair, either in the common form, or cut in different ways, to facilitate the production of the effect intended, as is well understood by artists; points of wood, ivory, and metal, will be occasionally required, and also a dabber of silk, or other material. The Painting being finished by the artist, it is to be slightly touched in the dark parts with plumbago (in fine powder) or other suitable material for making the surface conducting, with a soft pencil, and submitted to the Electrotype process, which is now well understood; by which means a metal plate is produced, capable of transferring to paper, or other material, a fac-simile of the original painting. If any of the tints should prove too dark, the burnisher, scraper, or other tool may be used, and any portions not sufficiently dark may be touched with the graver, or etched, the same as an ordinary copper-plate. When it is desired to produce a washy texture, I prefer a composition as follows. Mix equal parts of wax and ivory black, ground with olive oil, and made thin with spirits of turpentine. This may be used with any of the brushes already mentioned. A soft brush containing plumbago, passed over the painting, will tend to harden the composition, and make the surface a conducting surface.

I will now describe the second part of my Invention. The required subject is painted on a darkened or black copper or other plate, with a white or light-coloured material, so as to produce the effect intended, by means of such brushes or tools as will leave the composition in lines or dots capable of making an impression in the Electrotint plate, sufficient so as not to come in contact with the printing roller; whilst those parts of the darkened copper which are left visible, either in lines or dots, will, when electrotyped, receive the ink from the roller, and when printed from, transfer an impression to paper, or other material. The composition used is made in the following manner: two parts, by weight, of sulphate of lead, two of lard, and one of wax, melted together, and stirred till nearly cold. This composition is not likely to be too thick; a little olive oil can, however, be used with it, if it should prove so, and if too thin, more of the sulphate may be added: the composition should be well ground before it is used. The brushes recommended for this "surface Electrotint," are the cut brushes, of different degrees of fineness, mentioned as being applicable to the first process; sable pencils in their common shape, points of ivory, &c., and an instrument with several projecting points, somewhat resembling a comb, after the outline of the subject has been made in any way, so as not easily to be obliterated. Those parts of the plate which are intended to be black are left bare; the intermediate shades between black and white are obtained by painting with the cut brushes, which will leave lines, or points of composition, of considerable projection. Broad portions of light are obtained by heaping on the composition to the thickness of one-eighth of an inch, or more, in proportion to the size of t masses of white. In those instances where a white back ground, or very large portion of white occurs, it is only necessary to raise a wall of the composition, about an eighth of an inch thick round the edge of the subject, as the copper, &c., beyond the wall, can be protected by a sealing wax or other suitable varnish. Flat tints, for flesh, back-grounds, &c., can be formed by striking a fitch, or other brush, perpendicularly, so as to produce numberless projecting points, which make corresponding indentations on the deposit, too deep to receive any ink from the roller. A beautiful "dragged" texture is produced by using the composition thinned a little with spirits of turpentine, with a soft brush, held in a slanting direction, and passed quickly over the surface; this leaves the composition in a series of raised dots on those parts of the surface over which the brush has passed. In this manner may a suitable conducting surface be prepared for obtaining an electrotype plate or surface, using plumbago, or other suitable material, to make the surface conducting, where the surface is covered with composition, as above explained.

As it is sometimes necessary in printing from wood blocks to lower the light parts, so also is it sometimes necessary in Electrotype surfaces, according to this part of my Invention. —I will therefore describe the means I practice for lowering the light parts, though other means may be used :—I take a sheet of mill-board and fold it in the middle, so that the two flaps or sides may fold on each other without shifting. I then take a number of sheets of paper, according to the depth I wish the Plate to be lowered, and affix them to one flap. I then trace on the upper sheet the outline of the parts to be lowered. I then with a penknife cut through all the sheets where the Plate is to be most lowered, and only through a portion of them in other places, according to the depth required; taking care that the edges are cut on a bevel or slanting edge, and not a sudden or vertical one. The portions which have been cut out must now be rubbed over with paste or cement, and the other flap of mill-board shut on them, to which they will adhere: this is to be repeated until all the pieces cut out are taken from the holders. And thus the parts cut out will project on the surface of one part of the mill-board, and, when shut, will exactly fit into the hollows cut from the sheets of paper resting on the other surface of mill-board. I then take a polished soft copper-plate, and place it between the flaps of mill-board, in such manner that the Plate will have the projecting surface produced by the cut-out paper on one side, and the sheets of paper with the hollows on the other side; and I submit the whole to pressure—by which means, the Plate will be undulated in those places where the paper has been cut out, and to a degree depending on the depth to which the paper has been cut out: and, as such lowering is according to the outline of the design which is to be painted or produced on the Plate, the lowering will be in the proper places for the design. The Artist will now proceed in painting and producing the picture or design on the Plate; and from this Plate or surface an